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2006 Science			
Program of Studies			
Kentucky Science			
Grade 5			
Activity/Lesson	**State**	**Standards**	
Types of Engines (pgs. 11-23)	KY	SCI.5.SC-5-MF-U-2	Motion and forces: Students understand that the more mass an object has, the less effect a given force will have.
Chemistry (pgs. 25-41)	KY	SCI.5.SC-5-STM-U-1	Structure and transformation of matter: Students understand that a substance has its own set of properties which allows it to be distinguished from other substances.
Chemistry (pgs. 25-41)	KY	SCI.5.SC-5-STM-U-2	Structure and transformation of matter: Students understand that the physical properties of a substance do not change regardless of how much or how little of the substance there is.
Physics and Math (pgs. 43-63)	KY	SCI.5.SC-5-MF-U-2	Motion and forces: Students understand that the more mass an object has, the less effect a given force will have.
Rocket Activity (pgs. 69-75)	KY	SCI.5.SC-5-MF-U-2	Motion and forces: Students understand that the more mass an object has, the less effect a given force will have.
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Kentucky Science			
Grade 6			
Activity/Lesson	**State**	**Standards**	
Types of Engines (pgs. 11-23)	KY	SCI.6.SC-6-MF-U-2	Motion and forces: Students understand that when any force acts on an object, the change in speed or direction depends on the size and direction of the force.
Types of Engines (pgs. 11-23)	KY	SCI.6.SC-6-MF-S-2	Motion and forces: Students will use graphical and observational data to make inferences, predictions and draw conclusions about the motion of an object as related to the mass or force involved
Chemistry (pgs. 25-41)	KY	SCI.6.SC-6-STM-U-4	Structure and transformation of matter: Students understand that not all substances that are mixed together will chemically combine. Because of this, physical properties can be used to separate mixtures.
Physics and Math (pgs. 43-63)	KY	SCI.6.SC-6-MF-U-2	Motion and forces: Students understand that when any force acts on an object, the change in speed or direction depends on the size and direction of the force.
Physics and Math (pgs. 43-63)	KY	SCI.6.SC-6-MF-S-4	Motion and forces: Students will represent the motion of objects and their response to unbalanced forces in a variety of ways

Rocket Activity (pgs. 69-75)	KY	SCI.6.SC-6-MF-U-2	Motion and forces: Students understand that when any force acts on an object, the change in speed or direction depends on the size and direction of the force.
Rocket Activity (pgs. 69-75)	KY	SCI.6.SC-6-MF-S-4	Motion and forces: Students will represent the motion of objects and their response to unbalanced forces in a variety of ways
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Grade 7			
Activity/Lesson	**State**	**Standards**	
Chemistry (pgs. 25-41)	KY	SCI.7.SC-7-STM-U-2	Structure and transformation of matter: Students understand that there are only 92 naturally occurring elements and all matter is made of some combination of them (compounds).
Chemistry (pgs. 25-41)	KY	SCI.7.SC-7-STM-U-3	Structure and transformation of matter: Students understand that elements, as well as compounds, can be classified according to their similar properties, including how they react with each other and how they may be used. The patterns, which allow classification, can be used to infer or understand real life applications for those substances.
Chemistry (pgs. 25-41)	KY	SCI.7.SC-7-STM-S-4	Structure and transformation of matter: Students will observe reactions between substances that produce new substances very different from the reactants
Chemistry (pgs. 25-41)	KY	SCI.7.SC-7-ET-S-6	Energy transformations: Students will describe the kinetic molecular theory of matter
Physics and Math (pgs. 43-63)	KY	SCI.7.SC-7-MF-U-1	Motion and forces: Students understand that an object remains at rest or maintains a constant speed and direction of motion unless an unbalanced force acts on it (inertia).
Physics and Math (pgs. 43-63)	KY	SCI.7.SC-7-MF-U-2	Motion and forces: Students understand that forces acting against each other can be balanced, canceling each other out and having no net effect.
Physics and Math (pgs. 43-63)	KY	SCI.7.SC-7-MF-S-2	Motion and forces: Students will test the cause and effect relationship between straight-line motion and unbalanced forces
Physics and Math (pgs. 43-63)	KY	SCI.7.SC-7-MF-S-3	Motion and forces: Students will investigate balanced and unbalanced forces and their effect on objects and their motion
Physics and Math (pgs. 43-63)	KY	SCI.7.SC-7-MF-S-4	Motion and forces: Students will make inferences and draw conclusions about the motion of objects, and predict changes in position and motion as related to the mass or force

Physics and Math (pgs. 43-63)	KY	SCI.7.SC-7-MF-S-5	Motion and forces: Students will calculate work as the product of force and distance moved in the direction of the force
Physics and Math (pgs. 43-63)	KY	SCI.7.SC-7-EU-S-1	Energy transformations: Students understand that research how the laws of motion have been (and are still) used to make predictions about the movement of planets and satellites
Rocket Activity (pgs. 69-75)	KY	SCI.7.SC-7-MF-U-1	Motion and forces: Students understand that an object remains at rest or maintains a constant speed and direction of motion unless an unbalanced force acts on it (inertia).
Rocket Activity (pgs. 69-75)	KY	SCI.7.SC-7-MF-U-2	Motion and forces: Students understand that forces acting against each other can be balanced, canceling each other out and having no net effect.
Rocket Activity (pgs. 69-75)	KY	SCI.7.SC-7-MF-S-2	Motion and forces: Students will test the cause and effect relationship between straight-line motion and unbalanced forces
Rocket Activity (pgs. 69-75)	KY	SCI.7.SC-7-MF-S-3	Motion and forces: Students will investigate balanced and unbalanced forces and their effect on objects and their motion
Rocket Activity (pgs. 69-75)	KY	SCI.7.SC-7-MF-S-4	Motion and forces: Students will make inferences and draw conclusions about the motion of objects, and predict changes in position and motion as related to the mass or force
Rocket Activity (pgs. 69-75)	KY	SCI.7.SC-7-MF-S-5	Motion and forces: Students will calculate work as the product of force and distance moved in the direction of the force
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Kentucky Science			
Grade 8			
Activity/Lesson	**State**	**Standards**	
Types of Engines (pgs. 11-23)	KY	SCI.8.SC-8-MF-S-1	Motion and forces: Students will differentiate speed and acceleration and classify real-life examples of each
Physics and Math (pgs. 43-63)	KY	SCI.8.SC-8-MF-U-1	Motion and forces: Students understand that Isaac Newton developed a set of rules that can be used to describe and predict virtually all observed motion on Earth and in the universe. These Laws of Motion demonstrate that the rules governing the Earth are the same as those controlling the rest of the observed universe.

Physics and Math (pgs. 43-63)	KY	SCI.8.SC-8-MF-U-2	Motion and forces: Students understand that preconceived expectations can influence what people actually observe, preventing them from detecting other results. In order to maintain objectivity, different investigators should investigate the same question independently. For example, Newton's Laws are widely accepted because they have been verified by so many different observers.
Physics and Math (pgs. 43-63)	KY	SCI.8.SC-8-MF-S-2	Motion and forces: Students will explain and experimentally verify how Newton's Laws show that forces between objects affect their motion, allowing future positions to be predicted from their present speeds and positions
Rocket Activity (pgs. 69-75)	KY	SCI.8.SC-8-MF-U-1	Motion and forces: Students understand that Isaac Newton developed a set of rules that can be used to describe and predict virtually all observed motion on Earth and in the universe. These Laws of Motion demonstrate that the rules governing the Earth are the same as those controlling the rest of the observed universe.
Rocket Activity (pgs. 69-75)	KY	SCI.8.SC-8-MF-U-2	Motion and forces: Students understand that preconceived expectations can influence what people actually observe, preventing them from detecting other results. In order to maintain objectivity, different investigators should investigate the same question independently. For example, Newton's Laws are widely accepted because they have been verified by so many different observers.
Rocket Activity (pgs. 69-75)	KY	SCI.8.SC-8-MF-S-2	Motion and forces: Students will explain and experimentally verify how Newton's Laws show that forces between objects affect their motion, allowing future positions to be predicted from their present speeds and positions
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2006 Science			
Program of Studies			
Kentucky Science			
Grades 9-12			
Activity/Lesson	**State**	**Standards**	
History of Aviation Propulsion (pgs. 5-9)	KY	SCI.9-12.SC-H-BC-S-7	Biological change: Students will investigate the historical development and revision of a variety of accepted scientific laws, theories and claims
Chemistry (pgs. 25-41)	KY	SCI.9-12.SC-H-STM-S-2	Structure and transformation of matter: Students will Investigate the kinetic molecular theory of matter

Chemistry (pgs. 25-41)	KY	SCI.9-12.SC-H-STM-S-6	Structure and transformation of matter: Students will use evidence/data from chemical reactions to predict the effects of changes in variables (concentration, temperature, properties of reactants, surface area and catalysts)
Physics and Math (pgs. 43-63)	KY	SCI.9-12.SC-H-MF-S-2	Motion and forces: Students will investigate Newton's Laws of Motion and Gravitation. Experimentally test inertia and gravitational acceleration
Physics and Math (pgs. 43-63)	KY	SCI.9-12.SC-H-MF-S-9	Motion and forces: Students will predict which forces would be predominant in a given system and explain
Rocket Activity (pgs. 69-75)	KY	SCI.9-12.SC-H-MF-S-2	Motion and forces: Students will investigate Newton's Laws of Motion and Gravitation. Experimentally test inertia and gravitational acceleration
Rocket Activity (pgs. 69-75)	KY	SCI.9-12.SC-H-MF-S-9	Motion and forces: Students will predict which forces would be predominant in a given system and explain